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We claim:

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1. An isolated double-stranded DNA molecule which hybridizes to the DNA sequence of SEQ ID NO:3, wherein said DNA molecule encodes a glyphosate oxidoreductase enzyme.

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<sup>40</sup> 2. A recombinant bacterium containing the double-stranded DNA molecule of claim 1.

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3. The DNA molecule of claim 1, wherein said DNA molecule comprises SEQ ID NO:17.

4. A DNA molecule comprising SEQ ID NO:4.

5. An isolated DNA molecule that is capable of hybridizing to the DNA sequence of SEQ ID NO:4, wherein said DNA molecule encodes a glyphosate oxidoreductase enzyme.

6. A bacterium containing the DNA molecule of claim 5.

7. A DNA molecule comprising SEQ ID NO:6.

8. An isolated DNA molecule that is capable of hybridizing to the DNA sequence of SEQ ID NO:6, wherein said DNA molecule encodes a glyphosate oxidoreductase enzyme.

9. A bacterium containing the DNA molecule of claim 8.

**10. A DNA molecule comprising SEQ ID NO:7.**

11. An isolated DNA molecule that is capable of hybridizing to the DNA sequence of SEQ ID NO:7, wherein said DNA molecule encodes a glyphosate oxidoreductase enzyme.

12. A bacterium containing the DNA molecule  
of claim 11.

13. A DNA molecule comprising SEQ ID NO:8.

14. An isolated DNA molecule that is capable of hybridizing to the DNA sequence of SEQ ID NO:8, wherein said DNA molecule encodes a glyphosate oxidoreductase enzyme.

15. A bacterium containing the DNA molecule of claim 14.

16. A DNA molecule comprising SEQ ID  
NO:1

17. An isolated DNA molecule that is capable of hybridizing to the DNA sequence of SEQ ID NO:17, wherein said DNA molecule encodes a glyphosate oxidoreductase enzyme.

18. A bacterium containing the DNA molecule of claim 17.

19. A method for selecting transformed plant cells comprising:

- (a) introducing a chimeric gene comprising SEQ ID NO:3, 4, 6, 7, 8 or 17 into plant cells;
- (b) placing said plant cells on a plant growth media containing glyphosate; and
- (c) selecting plant cells that exhibit growth on said glyphosate containing media.

20. A method for selecting transformed plant cells comprising:

- (a) introducing a chimeric gene comprising a DNA molecule encoding a glyphosate oxidoreductase enzyme into plant cells, wherein the DNA molecule is capable of hybridizing to SEQ ID NO:3, 4, 6, 7, 8 or 17;
- (b) placing said plant cells on a plant growth media containing glyphosate; and
- (c) selecting plant cells that exhibit growth on said glyphosate containing media.